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ABSTRACT

This supplementary math curriculum guide for use with Spanish-speaking, fouth through sixth grade students in Chicago public schools employs a contrastive analysis approach. Lessons are presented for objectives for which the instructional strategies used in the United States differ from those used in Spanish-speaking countries. (Objectives for which the methodology is the same are taught from the standard math curriculum.) Every lesson has four parts: (1) an explanation of the differences in the instructional strategies used in the Spanish-speaking countries and in the U.S.; (2) a student activity, in Spanish, to reinforce students' skills in using their native language and methodologies; (3) suggestions for facilitating the students' transition from their native methodology to the U.S. methodology; and (4) a transitional activity which provides students with practice in solving problems using both methodologies and languages. The major topics covered are place value, operations with whole numbers, rational numbers, and measurement. An English-Spanish vocabulary list is provided. (CMG)

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ED241649

SUPPLEMENT FOR CURRICULUM GUIDE FOR MATHEMATICS: SPANISH-SPEAKING STUDENTS

GRADES 4-6

SUPLEMENTO DE LA GUIA DIDACTICA DE MATEMATICAS PARA LOS ESTUDIANTES DE HABLA HISPANA

CUATRO-SEXTO GRADOS

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PREFACE

A contrastive analysis approach to curriculum development is used in the Supplement for Curriculum Guide for Mathematics: Spanish-Speaking Students to enlighten both the bilingual teacher and the English-speaking classroom teacher regarding differences in the teaching methodology of the United States and Spanish-speaking countries.

Lessons have been developed for the objectives for which the instructional strategies used in the United States differ from those used in Spanish-speaking countries. Teachers are requested to use the Curriculum Guide for Mathematics to teach those objectives for which the same methodology is used in the United States and Spanish-speaking countries. It is important to note that instruction in every objective taught in the school system is provided for the Spanish-speaking student.

Every lesson has four parts:

an explanation for the teachers to acquaint them with the differences in the instructional strategies used in Spanish-speaking countries and in the United States

an activity for the students to reinforce their skills in using the language and methodology of their native countries

suggestions for the teachers to facilitate the students' transition from the methodology used in Spanish-speaking countries to the methodology used in the United States

a transitional activity designed to prepare students to use the standard algorithm of the Chicago public schools curriculum by providing practice in solving problems using the methodology and language of Spanish-speaking countries and the United States.

The sequence of objectives in the mathematics program of the Spanish-speaking countries may vary from that of the Chicago curriculum. Where there is variation in the order of the objectives, the sequence of the Chicago public schools curriculum is used.

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STRAND	GRADE 4* (Level J1)		GRADE 5 (Levels K1, K2, K3)		GRADE 6* (Level L1)	
	Objective	Pages	Objective	Pages	Objective	Pages
Place Value	2-J1-2 2-J1-3	2-5 6-9	2-K1-1 2-K1-3	34-38 39-42	2-L1-1	82-85
Operations with Whole Numbers	3-J1-16 3-J1-17 3-J1-19	10-14 15-20 21-26	3-K1-2 3-K1-6 3-K1-7	43-47 48-53 54-57	3-L1-6	86-89
Rational Numbers			4-K1-7 4-K2-3 4-K2-5 4-K3-5 4-K3-6	58-62 63-67 68-71 72-76 77-80	4-L1-13	90-95
Measurement	5-J1-3	27-31				

The major topics included for grades 4-6 are place value, operations with whole numbers, rational numbers, and measurement.

The standard page format provides basic information for each objective. Information includes the following: STRAND, OBJECTIVE, OBJECTIVE CODE, and SUGGESTED ACTIVITIES.

*Differentiated curriculum activities were not developed for Levels J2, L2, and L3.

GRADE 4

Place Value

2-J1-2 Identify and name the place value of each digit in a seven-place number.

2-J1-3 Write numbers, including seven-digit numbers, in expanded notation.

Operations with Whole Numbers

3-J1-16 Divide a two-digit dividend by a one-digit divisor, with remainder.

3-J1-17 Divide a three-digit dividend by a one-digit divisor, with remainder.

3-J1-19 Divide a three-digit dividend by a two-digit divisor.

Measurement

5-J1-3 Perform operations with numbers representing money values.

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STRAND PLACE VALUE OBJECTIVE CODE 2-J1-2

OBJECTIVE Identify and name the place value of each digit in a seven-place number.

SUGGESTED ACTIVITIES

Word names for numbers used in the Spanish-speaking countries differ from those used in the United States.

PART I

In some Spanish-speaking countries, such as Spain, the place value for numbers greater than 999 is shown by using a point instead of a comma to separate each of the periods. The periods of three places are called classes.

The place value for millions is shown by a small index number 1 placed above and between the period of the thousands and the millions. Successively, billions and trillions have a 2 and a 3 as indexes.

Spanish-Speaking Countries Method	United States Method
$6^{1}.596.860$	
$6^{1},596,860$	6,596,860
5^{1} 286 370	5,286,370

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PART II 2-J1-2

Usa el punto para separar los períodos y las clases de los números. Escribe los números dados en palabras:

Ejemplo:

75321.46 = 7[1]532.146 siete millones, quinientos treinta y dos mil, ciento cuarenta y seis

1) 8975236

2) 8194517

3) 7532137

4) 9254378

5) 5894238

6) 8937923

7) 7523787

8) 9276537

Usa la coma para separar los períodos y las clases de los números. Escribe los números dados en palabras:

Ejemplo:

7626387 = 7[1]626,387 siete millones, seiscientos veintiseis mil, trescientos ochenta y siete

1) 6875321

2) 9276751

3) 7824567

4) 2356896

5) 2357682

6) 8245783

7) 9234671

8) 9236752

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PART III

Review place value terminology and period indexes used in Spanish-speaking countries; then introduce the United States method.

Examples:

1) 2,795,431

2) 2,795,431

3) 4^{1},873,522

4) 4 873 522

5) 2^{1} 804 006

Have the students read the numbers and give the place value of each digit in both English and Spanish.

The first number above is read as follows:

1) Dos millones, setecientos noventa y cinco mil, cuatrocientos treinta y uno.

2) Two million, seven hundred ninety-five thousand, four hundred thirty-one.

Make the students aware of the differences in using the plural and the singular forms for:

millones	million
setecientos	seven hundred
noventa y cinco mil	ninety-five thousand
cuatrocientos	four hundred
treinta y uno	thirty-one

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PART IV 2-J1-2

Rewrite the following exercises using both the United States method and one of the methods used in the Spanish-speaking countries.

Escribe los siguientes números en ambos métodos; el requerido en los Estados Unidos y uno de los métodos usados en los paises de halla hispana.

	Spanish-Speaking Countries Method	United States Method
Ejemplo:	2 4 7 4 5 3 6 2,4 7 4,5 3 6 2 4 7 4 5 3 6	Example: 2 4 7 4 5 3 6 2,4 7 4,5 3 6 2 4 7 4 5 3 6
1)	3476879	
2)	3467921	
3)	8564367	
4)	2479652	
5)	3576543	
6)	2795723	
7)	9275684	
8)	5457956	
9)	1247865	
10)	5276953	

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STRAND PLACE VALUE OBJECTIVE CODE 2-J1-3

OBJECTIVE Write numbers, including seven-digit numbers, in expanded notation.

SUGGESTED ACTIVITIES

Expanded notation in some Spanish-speaking countries is worked vertically rather than horizontally.

PART I

Spanish-Speaking Countries Method

4 069 503

United States Method

4,069,503 =
4,000,000 + 0 +
60,000 + 9,000 +
500 + 0 + 3

Multiples of Ten

4 000 000	4 x	1 000 000
000 000	0 x	100 000
60 000	6 x	10 000
9 000	9 x	1 000
500	5 x	100
00	0 x	10
+ 3	3 x	1
4 069 503		

Multiples of Ten

(4x1,000,000) + (0x100,000) + (6x10,000) + (9x1,000) + (5x100) + (0x10) + (3x1)

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PART II 2-J1-3

Escribe los siguientes números en notación desarrollada:

1) 9,142,326

2) 7,257,431

3) 4,375,249

4) 6,235,432

5) 3,294,386

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PART III

2-J1-3

Have the students convert the vertical expanded notation to the horizontal expanded notation form.

Example:

$$1{,}349 = \begin{array}{r} 1{,}000 \\ 300 \\ 40 \\ +\ 9 \\ \hline 1{,}349 \end{array}$$

$1{,}000 + 300 + 40 + 9 = 1{,}349$

$1{,}349{,}528 = 1{,}000{,}000 + 300{,}000 + 40{,}000 + 9{,}000 + 500 + 20 + 8$

$$1{,}349{,}528 = \begin{array}{r} 1{,}000{,}000 \\ 300{,}000 \\ 40{,}000 \\ 9{,}000 \\ 500 \\ 20 \\ +\ 8 \\ \hline \end{array}$$

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PART IV 2-J1-3

Compare the two forms of expanded notation. Write the missing numbers in the squares.

Compara las dos formas de notación desarrollada y escribe el número que falta en los cuadros en blanco.

Ejemplo: 3,458,232 = 3,000,000
4[]0,000
5[]0,000
8[],000
2[]00
3[]0
[2]

3,000,000 + 4[]0,000 + 5[]0,000 + 8[],000
+ 2[]00 + 0[]0 + []

1) 2,541,325 = 2,000,000
[]00,000
[]0,000
[]000
[]00
[]0
[]

2) 4,358,241 = [],000,000
[]00,000
[]0,000
[],000
[]00
[]0
[]

3) 8,575,268

4) 3,506,939

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STRAND OPERATIONS WITH WHOLE NUMBERS OBJECTIVE CODE 3-J1-16

OBJECTIVE Divide a two-digit dividend by a one-digit divisor, with remainder.

SUGGESTED ACTIVITIES

In the Spanish-speaking countries the methodology for dividing a two-digit number requires that after the student multiplies each of the digits of the quotient by the digit of the divisor, the partial products obtained are subtracted mentally from the respective digits of the dividend. Products are not written under the dividend. The remainder is placed under the dividend. The division symbol used is a right angle facing up from left to right: (⌊____).

PART I

Spanish-Speaking Countries Method

Divisor

Dividendo 57 ⌊5

07 11 Cociente

Residuo 2

United Stated Method

11 Quotient

Divisor 5 ⌊57

- 5

7

- 5

2 Remainder

Note: The process is explained on page 11.

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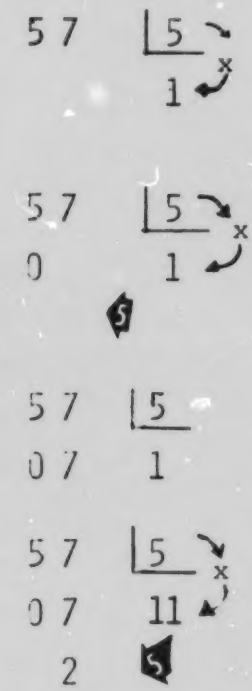
PART I (continued) 3-J1-16

Spanish-Speaking Countries Method

Ejemplo:



The steps in the process are as follows:

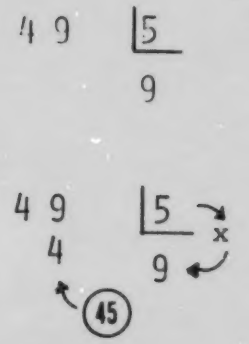
Use the 5 tens as the first step. Five goes into 5 one time. Write the one under the line.

Think: 1 x 5 = 5.
Think: 5 - 5 = 0. Write 0 under the 5.

Bring down the next digit, 7.

5 goes into 7 one time.
Think: 1 x 5 = 5.
Think: 7 - 5 = 2. Write 2 under 7 as the remainder.

Ejemplo:



Since 4 is less than 5, divide 5 into 49. 5 goes into 49 nine times. Write 9 under the line.

Think: 9 x 5 = 45.
Think: 49 - 45 = 4. Write 4 under 9 as the remainder.

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3-31-16

PART II

Divide cada uno de los siguientes números usando el símbolo con el cual estás familiarizado y restando mentalmente:

1) 84 dividido entre 2 — 84 ⌊2 — 2 ⌈84

2) 72 dividido entre 3

3) 95 dividido entre 3

4) 65 dividido entre 5

5) 80 dividido entre 5

6) 72 dividido entre 6

7) 88 dividido entre 8

8) 91 dividido entre 7

9) 54 dividido entre 6

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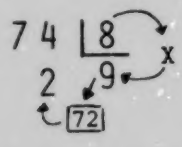
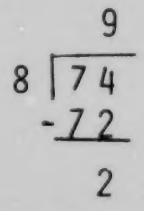
PART III

3-J1-16

Write an example on the chalkboard and have students explain both methods, step by step, at the same time that another student is solving it. Compare the two division algorithms.





Note: The number in the box does not appear in the Spanish form. The number is subtracted mentally immediately after the product is obtained.

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3-J1-16

PART IV

Divide the following numbers by using both methods:

Divide los siguientes números usando los dos métodos:

Spanish-Speaking Countries Method

Ejemplo:

98 | 4

1 2

+

98 | 4

18 2 4

2

+

6 | 59 = 9

6 | 59

5

United States Method

Example:

9

6 | 59

-54

5

24

4 | 98

-8

18

-16

2

1) 68 | 5

2) 83 | 7

3) 97 | 4

4) 69 | 5

5 | 68

7 | 83

4 | 97

5 | 69

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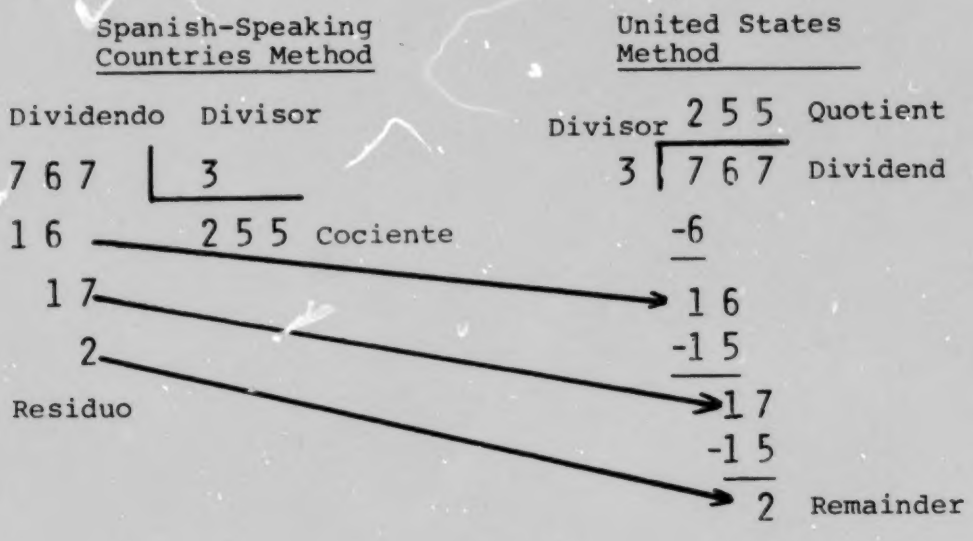
STRAND OPERATIONS WITH WHOLE NUMBERS OBJECTIVE CODE 3-J1-17

OBJECTIVE Divide a three-digit dividend by a one-digit divisor, with remainder.

SUGGESTED ACTIVITIES

The division algorithm in the Spanish-speaking countries is different from the one used in the United States.

PART I



Some of the differences are as follows:

The symbol is different. In South American countries the division sign (÷) is used; in Mexico and Cuba, the symbol is an angle opened up (⟌); in some regions within a country, the symbol opens down as in the United States (⟍). The dividend is written to the left of the symbol. The divisor is written to the right of the symbol.

The subtraction is done mentally. The partial products do not appear in the algorithm; only the remainders are shown below the digits that were divided.

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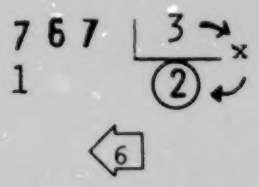
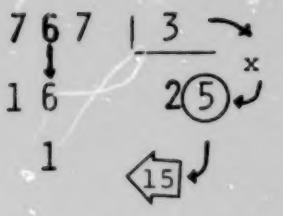
PART I (continued) 3-J1-17

These are the steps in the division process that students in Spanish-speaking countries follow.



3 goes into 7, two times.

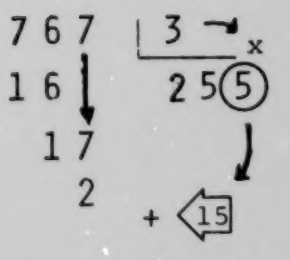
Think: 3 x (2) = 6.
Think: 7 - 6 = 1.
Write 1 under the 7.



Bring down the 6 next to the 1.

3 goes into 16, five times.

Think: 3 x (5) = 15.
Think: 16 - 15 = 1.
Write 1 under the 16, below the 6.

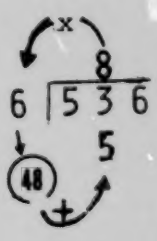


Bring down the 7 next to the 1.

3 goes into 17, five times.

Think: 3 x (5) = 15.
Think: 17 - 15 = 2.
Write 2 under the 17, below the 7.

In some of the Latin American countries the division symbol is the same as the one used in the United States (⌐‾‾). However, the abbreviated form is used to subtract mentally, as follows:



6 goes into 53, eight times.

Think: 6 x 8 = 48.
Think: 53 - 48 = 5
Write 5 under the 3.

Bring down the 6 and repeat the steps above.

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PART 1 (continued)

3-J1-17

6 goes into 56 nine times.

Think: 6 x 9 = 54.
Think: 56 - 54 = 2.
Write 2 under the 56, below the 6.

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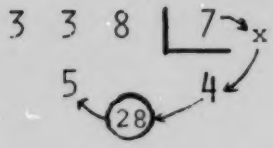
PART II

3-J1-17

Divide y comprueba los resultados usando la prueba del nueve. Sigue el ejemplo.

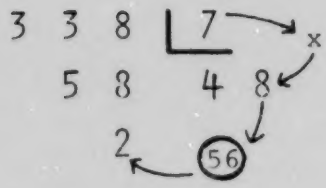
Ejemplo:

Mentalmente dí:



7 X 4 = 28.

33 - 28 = 5.



Baja el 8 para formar 58.

7 X 8 = 56.

58 - 56 = 2.

Prueba del Nueve

El 7 es el divisor.

El 3 es la suma de los números del cociente.

El 5 es el producto de 7 X 3, mas el residuo.

7 X 3 + 2 = 23

2 + 3 = 5.

El otro 5 es la suma de las cifras del dividendo.

(1) 9 6 3 | 7

(2) 7 3 7 | 6

(3) 5 9 6 | 8

(4) 4 8 9 | 5

(5) 7 8 1 | 4

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Part III 3-J1-17

After the students have mastered the division algorithm in the short form, teach them to make the transition to the method used in the United States. Use two steps.

Step One. Move from the algorithm form used in Spanish-speaking countries to the form used in the United States by changing the symbol and the order of the numbers.

Spanish-Speaking Countries Method	United States Method

Examples:

a) Divide 365 por 7 ⟶ 365 by 7

365 ÷ 7

365 | 7

b) Divide 365 entre 7 ⟶ How many 7's are there in 365?

365 | 7 7 | 365

For both of these forms, write the remainders only under the dividend immediately after multiplying the divisor by the quotient. Do not write the products.

STEP ONE

365 | 7
15 52
1

52
7 | 365
15
1

Step Two. Show the products of each digit of the quotient times the digit of the divisor by writing them under the divisor.

STEP TWO

52
7 | 365
15
1

52
7 | 365
-35
15
-14
1

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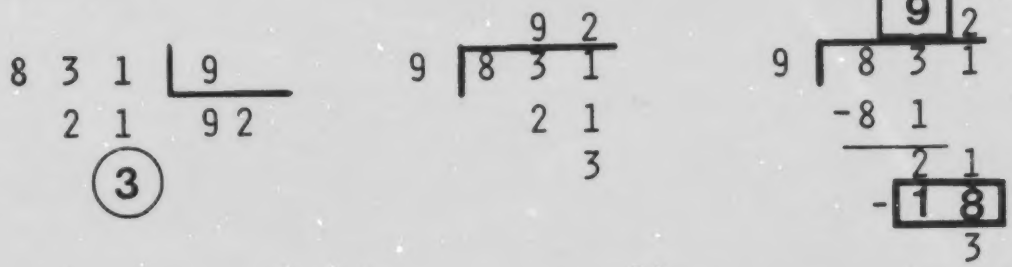
PART IV

3-J1-17

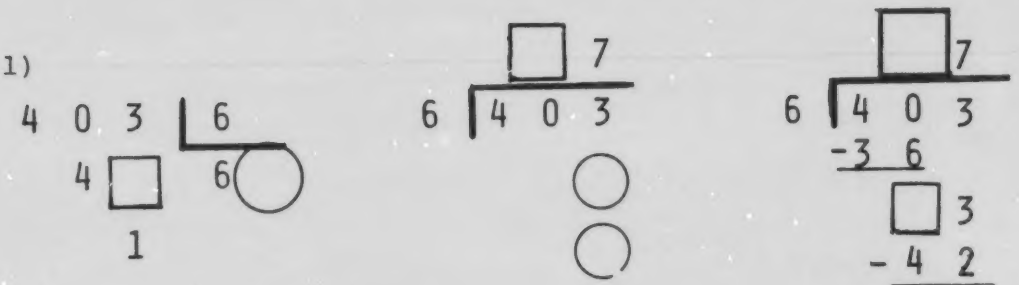
Compare both algorithm forms in the examples given and fill in the blanks in the following problems:

Compara ambas formas algorítmicas en los ejemplos dados y llena los blancos en los problemas siguientes:

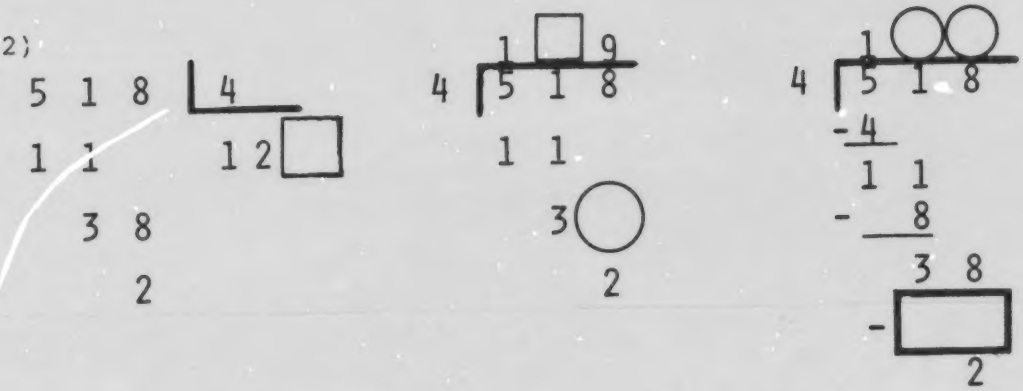
Ejemplo:



1)



2)



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STRAND OPERATIONS WITH WHOLE NUMBERS OBJECTIVE CODE 3-J1-19

OBJECTIVE Divide a three-digit dividend by a two-digit divisor.

SUGGESTED ACTIVITIES

In Spanish-speaking countries the division algorithm follows a different process from the one used in the United States. The division by a two- or more digit number is accomplished by multiplying the digit of the quotient by the digits of the divisor, one at a time. The product obtained is subtracted mentally from the respective digit of the dividend immediately after the multiplication is done. Only the remainder is written down.

PART I

Spanish-Speaking Countries Method

```
860 | 15
110   57
 05
```

United States Method

```
   57
15 | 860
   -75
   110
  -105
     5
```

```
   57
15 | 860
    110
     05
```

```
   57
15 | 860
   -75
   110
  -105
     5
```

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PART I (continued)

Cast-Out-Nines Method

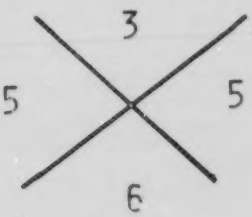
To check if the division algorithm is done correctly, the cast-out-nines method is used as follows:

Sum all digits of the dividend, divisor, quotient, and remainder. If a two-digit number is obtained as the sum, add again until a one-digit number results.

Q	x	D	+	R	=	D
Quotient	X	Divisor	+	Remainder	=	Dividend.

Quotient

5 + 7 = 12
1 + 2 = 3



Dividend

8 + 6 = 14
1 + 4 = 5

Divisor

1 + 5 = 6

QxD + R

3 x 6 + 5 = 23
2 + 3 = 5

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PART II 3-J1-19

Divide cada **uno de los siguientes números entre** 23.
Usa el ángulo **de dividir** que mejor te parezca-- ⌊___ , ⌈___ .

1) 879 ⌊23

2) 87

3) 987

4) 978

5) 789

6) 679 ⌊23

7) 967

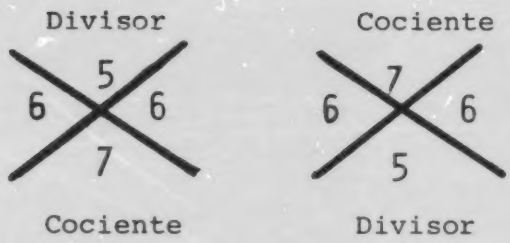
8) 706

9) 986

10) 998

Ejemplo:

798 ⌊23
108 34
16



Prueba del Nueve

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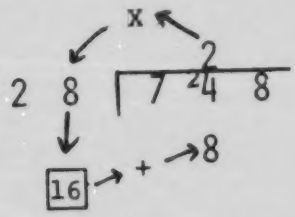
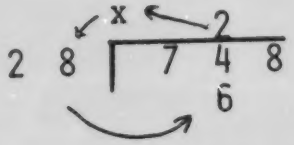
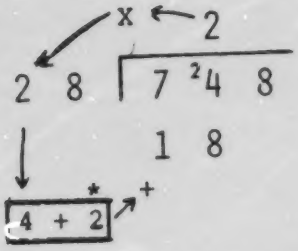
PART III

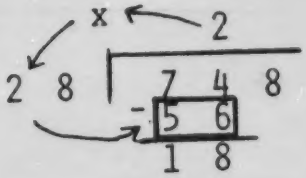
3-31-19

Compare the two division algorithms below. Explain that the numbers in the boxes do not appear in the Spanish form and that the subtraction is done mentally, immediately after the products are obtained.

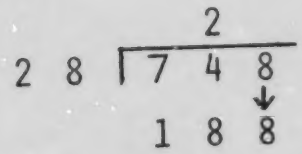




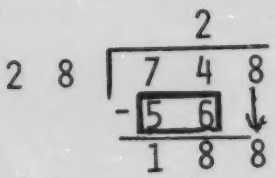


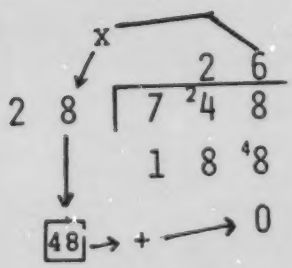


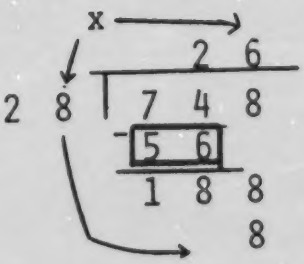
* This 2 is the 2 from the 24.



The 8 is brought down to make 188.







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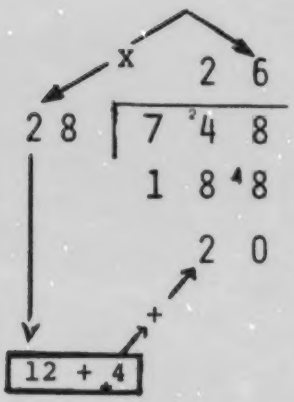
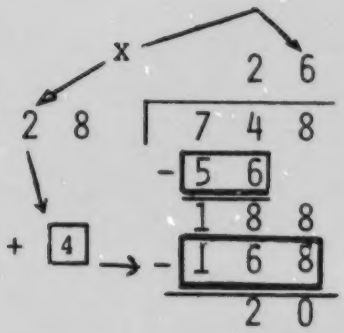
PART III (continued) **3-J1-19**





*This 4 is the 4 from the 48.

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PART IV

3-J1-19

Divide the following numbers by using both algorithm forms:

Divide los siguientes números usando los tres métodos:

Ejemplo:

$$\begin{array}{r|l} 814 & 18 \\ 94 & 45 \\ 04 & \end{array}$$

$$\begin{array}{r} 45 \\ 18\overline{)814} \\ 094 \\ 04 \end{array}$$

$$\begin{array}{r} 45 \\ 18\overline{)814} \\ -72 \\ \hline 94 \\ -90 \\ \hline 4 \end{array}$$

$$\begin{array}{r|l} 983 & 21 \\ & \end{array}$$

$$21\overline{)983}$$

$$21\overline{)983}$$

$$\begin{array}{r|l} 891 & 48 \\ & \end{array}$$

$$48\overline{)891}$$

$$48\overline{)891}$$

Divide using three different forms. Write the quotient and remainder on the lines provided.

Divide en tres formas distintas los números dados. Escribe el cociente y el residuo en los espacios dados.

	DIVIDENDO		DIVISOR	COCIENTE	RESIDUO
1)	755	÷	34	_____	_____
2)	849	÷	27	_____	_____
3)	316	÷	51	_____	_____
4)	279	÷	11	_____	_____
5)	900	÷	46	_____	_____

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STRAND MEASUREMENT OBJECTIVE CODE 5-J1-3

OBJECTIVE Perform operations with numbers representing money values.

SUGGESTED ACTIVITIES

Among Spanish-speaking countries different symbols and/or abbreviations are used to denominate monetary systems.

PART I

In Spanish-speaking countries the following symbols are used to represent the UNIT of money: B,B/,₡,¢,G, ₱ or P, L, SB, S/, $, ₱, C$. In Spain the abbreviation Pta is used to indicate Pesetas, and a comma is used to separate pesetas from céntimos. In other countries the abbreviation cent is used to indicate centavos, céntimos, and/or centésimos.

Note: The symbol ₡ is used in El Salvador and in Costa Rica to indicate the unit of money; the symbol does not refer to cents.

Spanish-Speaking Countries Method		United States Method
1,35Pta	Una Peseta y treinta y cinco céntimos	$1.25 One dollar and thirty-five cents.
C 3.50	tres Cordobas y cincuenta centavos	
S/3.50	tres Soles y cincuenta centavos	
3.50p	tres Pesos y cincuenta centavos	
3.50	tres Quetzales y cincuenta centavos	

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PART I (continued)

Monetary Unit Name	Symbol	100 Subdivisions Name	Symbol	Country
BALBOA	B/	Centésimos	Cts	Panama
BOLIVAR	B	Céntimos	C	Venezuela
COLON	₡	Céntimos	Cts	Costa Rica
COLON	₡	Centavos	C	El Salvador
CORDOBA	C$	Centavos	Cts	Nicaragua
ESCUDO	E or E^{O}	Centésimo	C	Chile
ESCUDO	$ or Esc	Centavos	Cts	Philippines
GUARANI	G	Céntimos	C	Paraguay
LEMPIRA	L	Centavos	¢	Honduras
PESETA	Pta	Céntimos	Cts	Spain
PESO	$B	Centavos	C	Bolivia
PESO	$ or P	Centavos	C	Colombia
PESO	RD$	Centavos	C	Dominican Republic
PESO	₱ or P	Séntimos or Centavos		Philippines
PESO	$	Centavos	¢	México
QUETZAL	₲ or Q	Centavos	c	Guatemala
SOL	S/ or S/.	Centavos	Cts.	Perú
SUCRE	S/.	Centavos	¢	Ecuador

The basic operations with units of money should be emphasized by giving special attention to the operations of subtraction and division.

Daily newspapers may be used by students to find the rate of exchange for the monetary unit of their native countries.

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PART II 5-J1-3

Encuentra en el periódico del día el equivalente en dólares de la unidad monetaria de cada país indicado. Luego ejecuta las siguientes conversiones:

Ejemplo:
México: Peso
$926.70

```
      42.12
22 ⌈926.70
   46
    2 7
      50
       6
```

$ 42.12 Dólares

(1) España: Pesetas (Pta)

185, 55 PTAS = $ _____ DÓLARES

(2) Perú: Sol (S/.)
Ecuador: Sucre (S/.)

S/. _____ = $ 4 5 3. 45

S/. _____ = $ 4 5 3. 45

(3) El Salvador: Colón (¢)

189.49 ¢ = $ _____ DÓLARES

(4) Venezuela: Bolivar (B)

140,357. 15B $ _____

(5) Honduras: Lempira (L)

879. 85 L = $ _____ DÓLARES

_____ L = $ 879. 85

(6) México: Peso ($)

$ 23,450. 75 = $ _____

$ _____ = $ 7.50

(7) Argentina: Peso ($)

$ 678.23 = $ _____ DÓLARES

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PART III

Help the students to compare the monetary system used in their respective countries with the system used in the United States. Compare symbols, the divisions of the monetary unit, and the way units are separated from cents.

Note: In some countries the divisions of the unit are smaller than the cent. In Chile, the smallest part is called a milesimo.

Comparison of Symbols

Explain that--

The symbol for the Peso has only one line written over the S. $

The symbol for the dollar has two lines written over the S. $

The symbol for the Sol has a slanted line and a period to the right of the S. S/.

The symbol for the cent varies among countries. cts, c, ¢, cmo

Comparison of Coins

The United States has a 25¢ coin but not a 20¢ coin.

Mexico has a 20¢ coin but not a 25¢ coin.

Comparison of Notation

Some Spanish-speaking countries use a comma to separate monetary units from decimal parts of the unit.

3,34Pesetas
$17,05
16,30¢

3,45Ptas
$17.05
16.30¢

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PART IV 5-J1-3

Use multiplication or division to convert the following amounts of money from one monetary system to another.

Usa el proceso algorítmico de multiplicación y de división según se usa en los Estados Unidos para convertir las siguientes cantidades monetarias de un sistema a otro:

1) 146.80 L = $ _____ (dólares)
2) $B 39.45 = $ _____ (dólares)
3) $46.75 = $ _____ (Pesos mexicanos)
4) S/. 49,580.00 = $ _____ (dólares)
5) ¢ 1,895.75 = $ _____ (dólares)
6) 3956,40 PTA = $ _____ (dólares)
7) 1,595.50 ₡ = $ _____ (dólares)
8) $145.50 = SB_____ (Pesos bolivianos)
9) $568.50 = ¢ _____ (Colones, Salvador)
10) $375.50 = ¢ _____ (Colones, Costa Rica)

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GRADE 5

Place Value

2-K1-1 Read and write eight-digit numerals.

2-K1-3 Write numerals in expanded notation, including eight places.

Operations with Whole Numbers

3-K1-2 Subtract whole numbers, five digits or more, with regrouping.

3-K1-6 Find the quotient of a five-digit dividend (or less) and a two-digit divisor.

3-K1-7 Estimate the quotient of a dividend of five digits or less and a two-digit divisor.

Rational Numbers

4-K1-7 Subtract rational numbers with like denominators, with regrouping.

4-K2-3 Subtract two rational numbers with unlike denominators.

4-K2-5 Subtract mixed numerals, including regrouping.

4-K3-5 Subtract rational numbers with unlike denominators, grouping required.

4-K3-6 Read and write a three-place decimal.

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STRAND PLACE VALUE OBJECTIVE CODE 2-K1-1

OBJECTIVE Read and write eight-digit numerals.

SUGGESTED ACTIVITIES

In some Spanish-speaking countries, such as Spain, points are used in lieu of commas in dividing each group of three digits in a numeral (1.000 = 1,000). The names of the groupings vary. In the United States, a three-place grouping is called a period; in Spanish-speaking countries, a three-place grouping is called a class and two classes form a period.

PART I

Spanish-Speaking Countries Method

Segundo Período						Primer Período					
Cuarta Clase Millares de Millón			Tercera Clase Millones			Segunda Clase Millares			Primera Clase Unidades		
12°	11°	10°	9°	8°	7°	6°	5°	4°	3°	2°	1°
orden			orden			orden			orden		
Centenas de Millares de Millón	Decenas de Millares de Millón	Unidades de Millares de Millón	Centenas de Millón	Decenas de Millón	Unidades de Millón	Centenas de Millar	Decenas de Millar	Unidades de Millar	Centenas Simples	Decenas Simples	Unidades Simples
				8	7	5	1	4	2	6	3

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PART I (continued) 2-K1-1

In some countries, such as Spain, the numeral is written with points in place of commas.

Example: 87.514.963

In some countries, such as Peru, the numeral is written with exponents 1, 2, 3 ... to denote millions, billions, trillions... respectively.

Example: $87^{1}514,963$

When writing numerals with words --

The thousands are written in the singular form (2,000 = dos mil) but hundreds and millions in the plural form (200 = doscientos; 3,000,000 = tres millones).

Words used to name numbers greater than or equal to 200 are formed by using the name of the place (ciento) after the name of the digit. For example, 200 is doscientos and 300 is trescientos.

The following are exceptions to the procedure described above:

500 = quinientos

700 = setecientos

900 = novecientos.

The number 87,514,963 is written as--ochenta y siete millones, quinientos catorce mil, novecientos veintitres.

United States Method

Third Period		Second Period			First Period		
Millions		Thousands			Ones		
Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units
8	7,	5	1	4,	9	6	3

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PART II

2-K1-1

Escribe los números en el lugar correcto para indicar el valor relativo de cada cifra. También escribe los números con letra.

Número	Valor Relativo de los Números								
	Decenas de Millón	Unidades de Millón	Centenas de Millar	Decenas de Millar	Unidades de Millar	Centenas Simples	Decenas Simples	Unidades Simples	
42 648 912	4	2	6	4	8	9	1	2	Cuarenta y dos millones, seiscientos cuarenta y ocho mil novecientos doce
64 169 462									
91 523 193									
8 410 277									
61 079									
18 010 498									
79 832 100									

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PART III 2-K1-1

Review Spanish terms for place values and then teach the English terms such as:

unidades -----▶ units (ones)

Review the term for place value groupings and then teach the United States terminology --

1 clase (for 3 places) -----▶ units to hundreds...

1 período (for 6 places) -----▶ units to thousands...

If necessary, review the reason for place value division markings and teach the use of commas --

1.000 (mil) -----▶ 1,000 (thousand)

Review the rules for writing numerals with words and then teach the translation --

dos -----▶ two catorce -----▶ fourteen

Point out that hundreds, thousands, and millions are written as singular in English--

doscientos -----▶ two hundred

dos mil -----▶ two thousand

dos millones -----▶ two million

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PART IV

2-K1-1

Use the correct punctuation and write the numbers in words:

Usa la puntuación correcta y escribe los siguientes números en palabras:

Spanish-Speaking Countries Method	United States Method
1) 64 162 942	1) 64 162 942
2) 19 123 456	2) 91 765 320
3) 10 000 020	3) 12 000 060

Write the digits for the following numerals:

Escribe las cifras para los números siguientes:

(1) cuarenta y tres millones, ochocientos dieciocho mil, setecientos sesenta y ocho

_____

(2) treinta y tres millones, cuatrocientos noventa y dos mil, seiscientos veinticinco

_____

(1) twenty-four million, three hundred seventy-six thousand, four hundred fifty-one

_____

(2) fifty-nine million, two hundred forty-three thousand, six hundred seventy-nine

_____

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STRAND PLACE VALUE OBJECTIVE CODE 2-K1-3

OBJECTIVE Write numerals in expanded notation, including eight places.

SUGGESTED ACTIVITIES

In most Spanish-speaking countries a vertical arrangement is used to show a number in expanded notation. In the United States a horizontal arrangement is used. Also, in some Spanish-speaking countries an index is used to denote millions ($5^{1}000,000$ = 5,000,000). In some Spanish-speaking countries a point is used in place of the comma (1.000 = 1,000).

PART I

Write $82^{1}654,217$ in expanded form.

Spanish-Speaking Countries Method

$80^{1}000,000$
$2^{1}000,000$
600,000
50,000
4,000
200
10
7

$82^{1}654,217$

United States Method

80,000,000 + 2,000,000 + 600,000 + 50,000 + 4,000 + 200 + 10 + 7 = 82,654,217

In some Spanish-speaking countries the students are instructed to write a small index 1, 2, ... to single out the millions in the seventh place, the billions in the thirteenth place... respectively.

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PART II **2-K1-3**

Marca las clases y los períodos y escríbelos en notación desarrollada.

1) 42 619 411

2) 17 416

3) 6 425 698

4) 6 942 333

5) 16 700 412

6) 272 419

7) 72 454 321

8) 91 543 298

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PART III 2-K1-3

Relate the place value terms in Spanish to the English terms.

unidades	⟶	units (ones)
decenas	⟶	tens
centenas	⟶	hundreds
unidades de millar	⟶	thousands
decenas de millar	⟶	ten thousands
centenas de millar	⟶	hundred thousands
unidades de millón	⟶	millions
decenas de millón	⟶	ten millions

If necessary, review the use of the index in the millions-place. Point out that the index is not used in the United States.

$2^{1}000,000 = 2,000,000$

Review the reason for using marks to group the digits. Stress the use of commas instead of periods in the United States method.

$1.000 = 1,000$

Review the format for number expansion that is used in the Spanish-speaking countries. Then teach the horizontal format used in the United States.

$$\begin{array}{r} 40,000,000 \\ 2,000,000 \\ 500,000 \\ 30,000 \\ 7,000 \\ 900 \\ 60 \\ +\quad 1 \\ \hline 42,537,961 \end{array}$$

40,000,000 + 2,000,000 + 500,000
+ 30,000 + 7,000 + 900 + 60 + 1
= 42,537,961

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PART IV **2-K1-3**

Write numbers in expanded notation. Use both vertical and horizontal forms.

Escribe los siguientes números en notación desarrollada en la forma vertical y horizontal.

	Spanish-Speaking Countries Method		United States Method
1)	9,142,029	5)	13,998,417
2)	4,828,949	6)	29,384
3)	27,179,144	7)	100,654
4)	75,397,208	8)	98,402,634

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STRAND OPERATIONS WITH WHOLE NUMBERS OBJECTIVE CODE 3-K1-2

OBJECTIVE Subtract whole numbers, five digits or more, with regrouping.

SUGGESTED ACTIVITIES

In the subtraction process used in the Spanish-speaking countries, the subtrahend is increased mentally by one instead of renaming the minuend.

PART I

Spanish-Speaking Countries Method	United States Method
ONES AND TENS PLACES	
43,675	436 7 15
-12,566	- 12566
31,109	31,109

The steps in the process are as follows:

Borrow 1 ten from 7 tens to make 10 ones. Add the 10 ones to the 5 ones to make 15 ones.

Say: 15 minus 6 is 9.

Add the 1 ten borrowed to the 6 tens in the subtrahend to form 7 tens.

Rename the 7 tens as 6 tens and ten ones.

Add the 10 ones to the 5 ones to form 15 ones.

Say: 15 minus 6 is 9.

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PART I (continued) 3-K1-2

Spanish-Speaking Countries Method

United States Method

ONES AND TENS PLACES

$$\begin{array}{r} 4\,2,3\,3^{1}6 \\ 3\,5,4\,6_{1}8 \\ \hline 8 \end{array}$$

$$\begin{array}{r} {\scriptstyle 2} \\ 4\,2,3\,\cancel{3}^{1}6 \\ -\,3\,5,4\,6\,8 \\ \hline 8 \end{array}$$

Analyze this process by studying the example given on the preceding page.

TENS AND HUNDREDS PLACES

$$\begin{array}{r} 4\,2,3^{1}3^{1}6 \\ 3\,5,4_{1}6_{1}8 \\ \hline 6\,8 \end{array}$$

$$\begin{array}{r} {\scriptstyle 2^{1}2} \\ 4\,2\,\cancel{3}\,\cancel{3}^{1}6 \\ -\,3\,5\,4\,6\,8 \\ \hline 6\,8 \end{array}$$

Find the number for the tens place by repeating the steps used in the ones place.

HUNDREDS AND THOUSANDS PLACES

$$\begin{array}{r} 4^{1}2^{1}3^{1}3^{1}6 \\ 3_{1}5_{1}4_{1}6_{1}8 \\ \hline 6,8\,6\,8 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\,1\,2^{1}2} \\ 4\,\cancel{2}\,\cancel{3}\,\cancel{3}^{1}6 \\ 3\,5,4\,6\,8 \\ \hline 6,8\,6\,8 \end{array}$$

Repeat the steps above for each of the places, until all of the places have been subtracted.

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PART II 3-K1-2

Revisa la lectura y escritura de números de cinco cifras. Presente problemas escritos para que los alumnos averigüen la operación necesaria para resolverlos.

¿Cuál es la diferencia entre cada uno de los siguientes números?

a. 35,806
b. 17,492
c. 29,957
d. 55,376
e. 23,094

Diferencia entre

a y b _____

a y c _____

a y d _____

a y e _____

Diferencia entre

b y c = _____

b y d = _____

d y e = _____

b y b = _____

Diferencia entre

c y d = _____

c y e = _____

d y e = _____

c y a = _____

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PART III

3-K1-2

Explain the subtraction method used in the United States. Compare it with the method used in Spanish-speaking countries.

Example:

Spanish-Speaking Countries Method

$2^{1}4^{1}2^{1}2^{1}6$

1 9 8 7 9
1 1 1 1

0 4 3 4 7

Borrow 1 ten from 2 tens. to make 10 ones.
Add the 10 ones to the 6 ones to make 16 ones.
Think: 16 - 9 = 7
Write 7 under the line, below the 9.
Return the 1 borrowed to the tens place of the subtrahend to make 8 tens.
Repeat the borrowing and returning from minuend to subtrahend as needed.

United States Method

$1^{1}3^{1}1^{1}1$

~~2~~ ~~4~~ ~~8~~ ~~8~~ $^{1}6$

1 9 8 7 9

0 4 3 4 7

Rename the 2 tens as 1 ten and 10 ones. Add the 10 ones to the 6 ones to make 16 ones.

Say: 16 - 9 is 7.
Write 7 under the line.

Repeat the process by renaming the digit in the hundreds place...

Place the following problem on the chalkboard:

$$\begin{array}{r} 2\,5\,3\,2\,7 \\ -\,1\,8\,7\,2\,9 \\ \hline \end{array}$$

Ask questions that will lead the students to an understanding of the differences in the two methods.

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PART IV **3-K1-2**

Subtract these numbers:

Reste los siguientes números:

Spanish-Speaking Countries Method	United States Method
32164 -17865	32164 -17865
13976 -12987	13976 -12987
25604 - 8796	25604 - 8796
163411 - 98765	163411 - 98765

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STRAND OPERATIONS WITH WHOLE NUMBERS OBJECTIVE CODE 3-K1-6

OBJECTIVE Find the quotient of a five-digit dividend (or less) and a two-digit divisor.

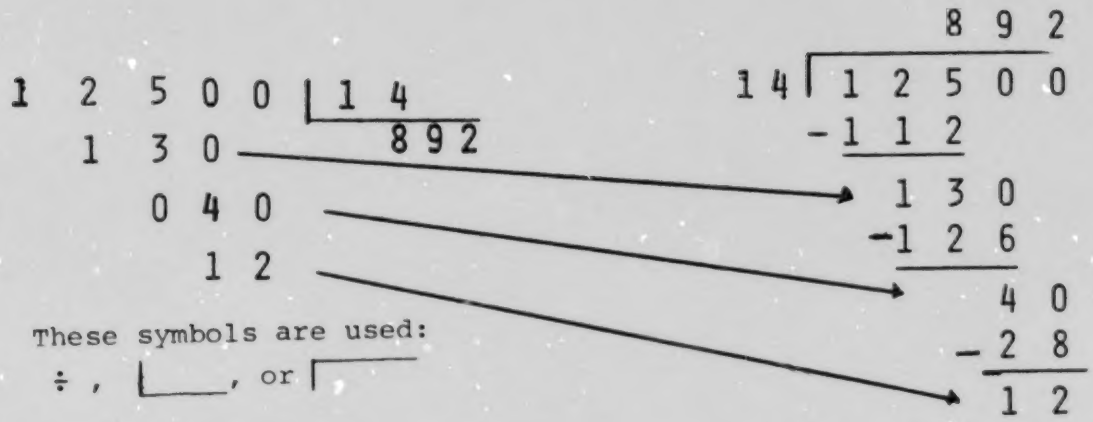
SUGGESTED ACTIVITIES

The division algorithm in the Spanish-speaking countries follows a process different from the one used in the United States.

PART I

Spanish-Speaking Countries Method

United States Method



These symbols are used:

÷ , ⌊___, or ⌈,

The dividend is written to the left of the symbol.

23451 ÷ 24

The divisor is written to the right of the symbol.

The subtraction is done mentally. The partial products of divisor times quotient do not appear in the algorithm. Only the remainders are shown below the digits that were divided.

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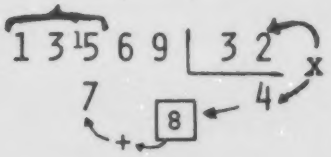
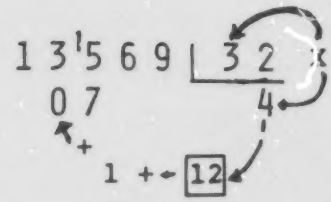
PART I (continued) 3-K1-6

Analyze the steps of the division algorithm as it is done in the Spanish-speaking countries.

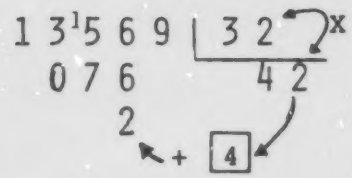


Think: 32 goes into 135 as 3 goes into 13, -- four times.

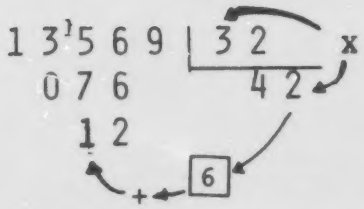
Now multiply: 4 x 2 = 8,
Think: 15 - 8 = 7.
Write 7 below the 5.

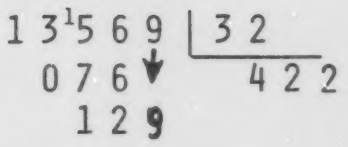


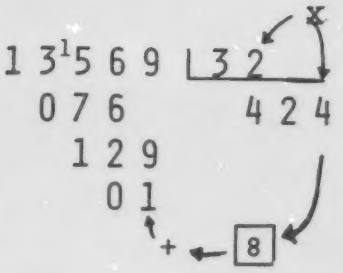
Now multiply: 4 x 3 = 12.
Add the 1 from the 15; 12 + 1 = 13.
Subtract 13 from 13.
Write 0 as a remainder under the 13.



Follow the steps above for each of the digits of the quotient.







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PART I (continued) 3-K1-6

The inverse operation of division or the cast-out-nines method is used to check a division problem.

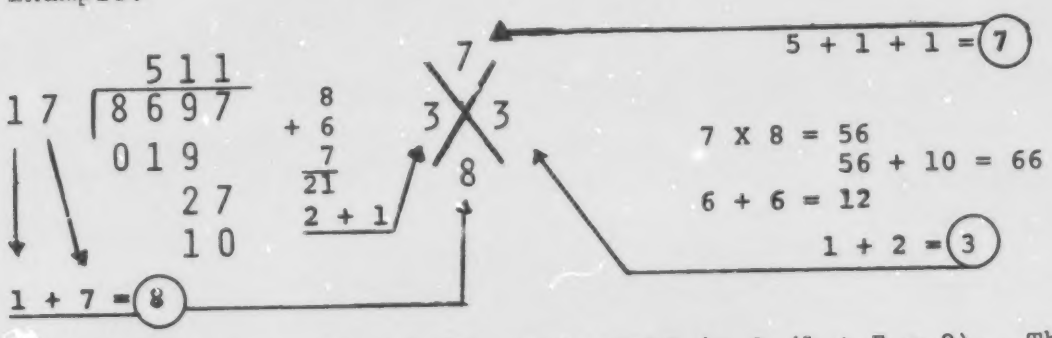
```
15348 | 45
 184    341
  048
   03
```

Divisor
4 + 5

```
   341     Quotient
 X  45     Divisor
 1705
 1364
 15345     Product
+    3     Remainder
 15348     Dividend
```

The cast-out method uses the principle of addition of the digits of the divisor, dividend, quotient, and remainder, if any. The nines or digits whose sum is nine are deleted from each of the sums. If a two-digit number is obtained in any of the four sums, the digits are added again until a one-digit number is obtained. The sums are placed around a figure X.

Example:



The sum of the digits of the divisor 17 is 8 (1 + 7 = 8). The 8 is written in the bottom part of the X.

The sum of the digits of the quotient 511 is 7 (5 + 1 + 1 = 7). The 7 is written in the top part of the X.

The sum of the digits of the dividend 8697 is 21 (8 + 6 + 7 = 21). The sum of the digits of 21 is 3 (2 + 1 = 3). The 3 is written in the left part of the X.
The product of 7 and 8 in the X is 56.

The sum of the product 56 and the remainder 10 is 66.
The sum of the digits of 66 is 12; the sum of the digits of 12 is 3. The 3 is written in the right part of the X. The digits in the left and right parts of the X are compared. If they are identical, the algorithm is correct.

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Part II **3-K1-6**

Sigue el ejemplo dado. Encuentra el cociente de los siguientes números y comprueba los resultados usando la prueba del nueve:

1) 76,592 | 42

2) 99,567 | 89

3) 76 | 11,229

4) 23 | 75,290

Ejemplo:

```
54376 | 62
 477    877
 436
  02
```

Dividendo

5 + 4 + 3 + 7 + 6 = 25
2 + 5 = 7

Cociente

8 + 7 + 7 = 22
2 + 2 = 4

Divisor

6 + 2 = 8

Producto más residuo

4 X 8 = 32
32 + 2 = 34
3 + 4 = 7

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PART III

3-K1-6

Facilitate the students' transition from one algorithm form to the other form, Figure A to Figure C, by using Figure B as an in-between step. See illustration below.

Note: Figure A shows the division algorithm used more frequently in the Spanish-speaking countries.

Figure B shows an in-between step. This form is also used in some Spanish-speaking countries. Students who have mastered form A must go to form B before making the transition to form C.

Figure C is the form used in the United States for the division algorithm.

Neither Figure A nor B shows the partial products. The subtraction is done by mentally subtracting the numbers as the products are obtained from the multiplication.

FIGURE A

```
1 2,5 0 0 | 1 4
1 3 0       8 9 2
  0 4 0
    1 2
```

FIGURE B

```
      8 9 2
1 4 | 1 2,5 0 0
    1 3 0
      0 4 0
        1 2
```

FIGURE C

```
        8 9 2
1 4 | 1 2,5 0 0
    - 1 1 2
      1 3 0
    - 1 2 6
      0 4 0
    -   2 8
      1 2
```

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PART IV 3-K1-6

Divide the following numbers using both division algorithm forms:

Divide los siguientes números usando las dos formas:

Spanish-Speaking Countries Method	United States Method
1) 41,596 ⟌ 18	6) 23 ⟌ 41,596
2) 30,587 ⟌ 52	7) 56 ⟌ 55,094
3) 1,457 ⟌ 12	8) 12 ⟌ 20,579
4) 75,410 ⟌ 84	9) 84 ⟌ 75,410
5) 10,087 ⟌ 25	10) 29 ⟌ 40,071

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STRAND OPERATIONS WITH WHOLE NUMBERS OBJECTIVE CODE 3-K1-7

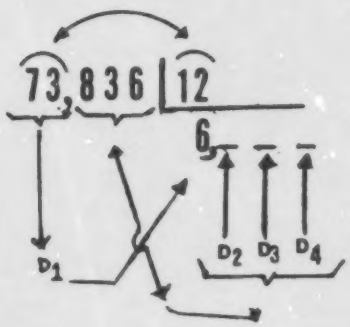
OBJECTIVE Estimate the quotient of a dividend of five digits or less and a two-digit divisor.

SUGGESTED ACTIVITIES

In Spanish-speaking countries the estimation is done by counting the number of digits in the dividend to determine the number of digits in the quotient instead of by doing the division algorithm.

PART I

Spanish-Speaking Countries Method



United States Method

$$73 \overline{)430} \quad 5 \text{ R } 65$$

Rounding 73 to 70 gives an estimate of 6 which makes $73 \times 6 > 430$.

$\square \times 70 \leq 430$

$6 \times 70 \leq 430$

$6 \times 73 = 438$

The number of digits in the dividend and in the divisor are counted. An attempt is made to divide the divisor into the first digit of the dividend. If the division is not possible, the divisor is divided into the first two digits, the first three digits...of the dividend until the division process is possible. When the division is possible, the first digit of the quotient is obtained and the number of digits in the quotient is determined by counting the digits to the right as a digit 2, digit 3.... In the example above, the quotient is between 6,000 and 6,999 because it is a four-digit number.

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PART II 3-K1-7

Estima los cocientes. Indica la primera cifra.

1) 10,585 | 15

2) 19,204 | 11

3) 13,933 | 13

4) 58,103 | 12

5) 19,219 | 33

6) 49,108 | 11

7) 11,538 | 25

8) 20,253 | 22

El cociente del problema número 1) tiene _____ cifras.

El cociente del problema número 2) tiene _____ cifras.

El cociente del problema número 3) es mayor que _____.

El cociente del problema número 4) es mayor que _____.

El cociente del problema número 5) es mayor que _____.

El cociente del problema número 6) es mayor que _____.

El cociente del problema número 7) es mayor que _____.

El cociente del problema número 8) es mayor que _____.

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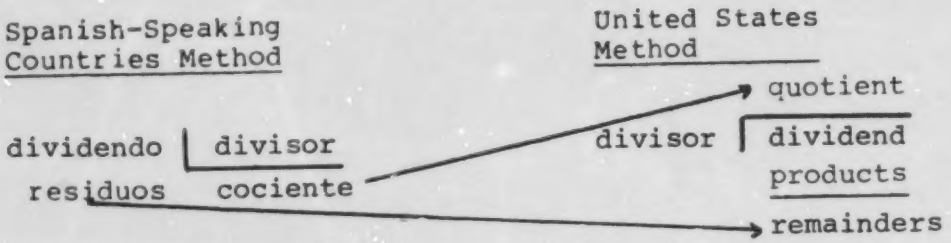
PART III

3-K1-7

Review the Spanish terms and guide the students in drawing the division symbols.



Have the students write the dividend outside and to the left side of the right angle and the divisor inside the angle.

Explain that in the United States the divisor is written outside and to the left of the right angle and the dividend inside the angle. Point out that the angle opens downward.

When solving problems with the students, be sure that they place each digit of the quotient in its proper place. Tell them to wirte 0 (zero) if the remainder is zero.

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PART IV 3-K1-7

Compare both ways. Write the number of digits needed in the quotient.

Compara ambas formas luego escribe el número de dígitos necesarios en el cociente.

19,348 ⟌ 12 (four digits) — XXXX

X XXX (four digits) — 12 ⟌ 19,834

1) 40,017 ⟌ 16 _____

2) 16 ⟌ 34,701 _____

3) 67,248 ⟌ 23 _____

4) 23 ⟌ 16,824 _____

5) 12,006 ⟌ 14 _____

6) 14 ⟌ 11,600 _____

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STRAND RATIONAL NUMBERS OBJECTIVE CODE 4-K1-7

OBJECTIVE Subtract rational numbers with like denominators, with regrouping.

SUGGESTED ACTIVITIES

In Spanish-speaking countries subtracting mixed numerals is done by converting them to improper fractions and then subtracting. This process is carried out horizontally.

PART I

Spanish-Speaking Countries Method

$2\frac{1}{4} - 1\frac{3}{4} =$

$\frac{9}{4} - \frac{7}{4} =$

$\frac{9 - 7}{4} =$

$\frac{2^{1}}{4_{2}} = \frac{1}{2}$

In order to subtract mixed numerals, it is necesary to convert them to improper fractions.

United States Method

$2\frac{1}{4} - 1\frac{3}{4} =$

$2\frac{1}{4} = 1\frac{5}{4}$

$-1\frac{3}{4} = 1\frac{3}{4}$

$0\frac{2}{4} = \frac{1}{2}$

If renaming a whole number is required in order to subtract mixed numerals, the mixed numerals are regrouped as illustrated above.

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PART I (continued) **4-K1-7**

Step 1

$$2\frac{1}{4} = \frac{(2 \times 4) + 1}{4} = \frac{9}{4}$$

The mixed numeral is converted to an improper fraction by multiplying the whole number by the denominator and then adding the numerator to the product. The denominator is common to both fractions.

Step 2

$$1\frac{3}{4} = \frac{(1 \times 4) + 3}{4} = \frac{7}{4}$$

The second mixed numeral is converted by proceeding in the same manner as explained above.

Step 3

The second fraction is subtracted from the first fraction.

$$\frac{9}{4} - \frac{7}{4} = \frac{2}{4}$$

$$\frac{9 - 7}{4} = \frac{2}{4}$$

Step 4

The fraction is renamed in simplest form.

$$\frac{\cancel{2}^{1}}{\cancel{4}_{2}} = \frac{1}{2}$$

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PART II **4-K1-7**

Encuentra la diferencia y exprésala en la forma más simple.

1) $8\frac{4}{8} - 4\frac{7}{8} =$

2) $2\frac{3}{7} - 1\frac{5}{7} =$

3) $1\frac{7}{9} - \frac{8}{9} =$

4) $2\frac{2}{3} - 2\frac{1}{3} =$

5) $1\frac{2}{9} - \frac{5}{9} =$

6) $4\frac{1}{4} - 3\frac{3}{4} =$

7) $3\frac{2}{6} - 1\frac{5}{6} =$

8) $5\frac{3}{5} - 2\frac{4}{5} =$

9) $7\frac{1}{4} - 3\frac{3}{4} =$

10) $6\frac{5}{7} - 4\frac{6}{7} =$

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PART III

4-K1-7

Write a subtraction problem on the chalkboard. Have the students explain both methods of subtracting fractions. Analyze the differences in position and process.

Spanish-Speaking Countries Method

$6\frac{1}{8} - 4\frac{7}{8} =$

$\frac{49 - 39}{8} = \frac{10}{8} =$

$1\frac{2}{8} = 1\frac{1}{4}$

United States Method

$6\frac{1}{8} = 5\frac{9}{8}$

$-4\frac{7}{8} = 4\frac{7}{8}$

$1\frac{2}{8} = 1\frac{1}{4}$

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PART IV **4-K1-7**

Subtract the following numbers and express each difference in the simplest form:

Resta las siguientes fracciones y reduce a la mínima expresíon:

1) $2\frac{2}{5} - 1\frac{3}{5} =$

2) $3\frac{2}{6} - 2\frac{5}{6} =$

3) $4\frac{1}{6} - 2\frac{2}{6} =$

4) $4\frac{3}{8} - \frac{7}{8} =$

5) $5\frac{2}{6} - \frac{5}{6} = =$

6) $3\frac{3}{7} - 2\frac{5}{7} =$

7) $2\frac{3}{8} - 1\frac{7}{8} =$

8) $3\frac{3}{7} - 2\frac{4}{7} =$

9) $1\frac{4}{9} - \frac{8}{9} =$

10) $7\frac{1}{3} - 5\frac{2}{3} =$

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STRAND RATIONAL NUMBERS OBJECTIVE CODE 4-K2-3

OBJECTIVE Subtract two rational numbers with unlike denominators.

SUGGESTED ACTIVITIES

To subtract fractions with unlike denominators, the minuend and the subtrahend are written horizontally instead of vertically. The rational numbers are converted to improper fractions in the Spanish-speaking countries.

PART I

Spanish-Speaking Countries Method

$$\frac{5}{8} - \frac{3}{5} = \frac{25}{40} - \frac{24}{40}$$

$$= \frac{25 - 24}{40} = \frac{1}{40}$$

$$\frac{7}{8} - \frac{5}{12} = \frac{21}{24} - \frac{10}{24}$$

$$= \frac{21 - 10}{24} = \frac{11}{24}$$

United States Method

$$\frac{5}{8} = \frac{25}{40}$$

$$- \frac{3}{5} = \frac{24}{40}$$

$$\frac{1}{40}$$

$$\frac{7}{8} = \frac{21}{24}$$

$$- \frac{5}{12} = \frac{10}{24}$$

$$\frac{11}{24}$$

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PART I (continued) 4-K2-3

Students are required to simplify the fractions to the lowest terms when possible by dividing numerator and denominator by the largest factor.

Example:

$$\frac{2}{4} - \frac{3}{9} = \frac{1}{2} - \frac{1}{3}$$

$$= \frac{3-2}{6} = \frac{1}{6}$$

The factor two is the divisor for the first fraction and the factor three is the divisor for the second fraction.

When denominators do not have a common factor, the unlike denominators are multiplied to find the least common denominator.

$$\frac{5}{6} - \frac{2}{5} = \frac{25}{30} - \frac{12}{30} =$$

$$= \frac{25-12}{30} = \frac{13}{30}$$

The unlike denominators are multiplied.

$6 \times 5 = 30$

When unlike denominators have a factor in common, the following process is used:

$$\frac{7}{8} - \frac{7}{12} =$$

The denominators are placed side by side.

The lowest common factor is written at the right of the line.

8	12	2
4	6	2 x
2	3	x

$$\frac{21}{24} - \frac{14}{24} =$$

The quotients are written below the numbers.

Another factor is used until all common factors are at the right of the line.

All the prime numbers are multiplied. $2 \times 3 \times 2 \times 2 = 24$

$$\frac{21-14}{24} =$$

$$\frac{7}{24}$$

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PART II 4-K2-3

Resta las siguientes fracciones. Reduce si es posible, las fracciones a su expresión mínima antes de restar.

Ejemplo:

$$\frac{4}{6} - \frac{7}{14} = \frac{2}{3} - \frac{1}{2} = \frac{4 - 3}{6} = \frac{1}{6}$$

1) $1\frac{9}{12} - \frac{3}{5} =$

2) $2\frac{10}{12} - \frac{10}{16} =$

3) $1\frac{7}{9} - \frac{3}{7} =$

4) $1\frac{25}{30} - \frac{1}{3} =$

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PART III

4-K2-3

After students have mastered the subtraction of rational numbers with unlike denominators, facilitate the transition to the method used in the United States as follows:

Spanish-Speaking Countries Method	United States Method
Example:	
$1\frac{3}{4} - \frac{2}{3} =$	$1\frac{3}{4} = 1\frac{9}{12}$
Convert the mixed numeral to an improper fraction.	$-\frac{2}{3} = -\frac{8}{12}$
	$1\frac{1}{12}$
$\frac{7}{4} - \frac{2}{3} =$	
Find a common denominator.	
$\frac{21}{12} = \frac{8}{12}$	
$= \frac{21 - 8}{12} = \frac{13}{12}$	
$= 1\frac{1}{12}$	

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PART IV

4-K2-3

Subtract the fractions with unlike denominators. Use both methods.

Resta estas fracciones de diferente denominador. Usa ambos métodos.

Spanish-Speaking Countries Method	United States Method
1) $\frac{14}{16} - \frac{2}{3} =$	1) $\frac{14}{16}$ $- \frac{2}{3}$ _____
2) $\frac{9}{12} - \frac{3}{5} =$	2) $\frac{9}{12}$ $- \frac{3}{5}$ _____
3) $\frac{8}{9} - \frac{2}{5} =$	3) $\frac{8}{9}$ $- \frac{2}{5}$ _____

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STRAND RATIONAL NUMBERS OBJECTIVE CODE 4-K2-5

OBJECTIVE Subtract mixed numerals, including regrouping.

SUGGESTED ACTIVITIES

Subtraction of mixed numerals is accomplished in Spanish-speaking countries in a manner different from the United States method.

PART I

The main differences are as follows:

The subtraction is done horizontally not vertically.

The mixed numerals are converted to improper fractions.

Spanish-Speaking Countries Method

$3\frac{1}{8} - 2\frac{3}{4} =$

Minuend Subtrahend

$\frac{25}{8} - \frac{11}{4} =$

$\frac{25 - 22}{8} = \frac{3}{8}$

United States Method

$3\frac{1}{8} \dashrightarrow 2\frac{9}{8}$

$-\ 2\frac{3}{4} \dashrightarrow 2\frac{6}{8}$

$\frac{3}{8}$

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PART II 4-K2-5

Haz los siguientes ejercicios:

Ejemplo:

$$3\frac{1}{8} - 2\frac{3}{4} = \frac{25}{8} - \frac{11}{4}$$

$$= \frac{25 - 22}{8} = \frac{3}{8}$$

1) $8\frac{1}{8} - 6\frac{2}{16} =$

2) $19\frac{2}{4} - 10\frac{1}{12} =$

3) $18\frac{2}{5} - 4\frac{2}{10} =$

4) $6\frac{2}{3} - 3\frac{11}{18} =$

5) $8\frac{1}{20} - 6\frac{1}{4} =$

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PART III

4-K2-5

After students have mastered the Spanish-speaking method of subtracting mixed numerals, emphasize that the main difference is in regrouping.

Spanish-Speaking Countries Method

$$3\frac{1}{8} \longrightarrow \frac{25}{8}$$

Explain that $3\frac{1}{8}$ is changed to $\frac{25}{8}$ by multiplying $\frac{8}{8} \times 3$ and adding $\frac{1}{8}$ to the product.

$$2\frac{3}{4} \longrightarrow \frac{11}{4}$$

Show that $2\frac{3}{4}$ is changed to $\frac{11}{4}$ by multiplying $\frac{4}{4} \times 2$ and adding $\frac{3}{4}$ to the product.

$$\frac{25}{8} - \frac{11}{4}$$

In order to subtract, both fractions must have the same denominator.

$$\frac{25}{8} - \frac{\overset{(11 \times 2)}{22}}{} = \frac{3}{8}$$

United States Method

$$3\frac{1}{8} \longrightarrow 2\frac{9}{8}$$

Explain that $3\frac{1}{8}$ is changed to $2\frac{9}{8}$ by renaming one whole as $\frac{8}{8}$ and adding it to $\frac{1}{8}$.

$$2\frac{3}{4} \longrightarrow 2\frac{6}{8}$$

Show that $2\frac{3}{4}$ is changed to $2\frac{6}{8}$ by finding an equivalent fraction of $\frac{3}{4}$ with the same denominator as the other fraction.

$$\begin{array}{r} 3\frac{1}{8} = 3\frac{1}{8} = 2\frac{9}{8} \\ -\ 2\frac{3}{4} = 2\frac{6}{8} = 2\frac{6}{8} \\ \hline \frac{3}{8} \end{array}$$

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PART IV 4-K2-5

Solve the following problems by using both methods:

Resuelve los problemas usando ambos metodos:

	Spanish-Speaking Countries Method	United States Method
1) $5\frac{1}{5} - 3\frac{1}{15} =$		
2) $2\frac{1}{4} - 1\frac{1}{12} =$		
3) $8\frac{1}{6} - 6\frac{1}{12} =$		
4) $15\frac{1}{2} - 8\frac{1}{4} =$		
5) $18\frac{1}{2} - 2\frac{1}{3} =$		

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STRAND RATIONAL NUMBERS OBJECTIVE CODE 4-R3-5

OBJECTIVE Subtract rational numbers with unlike denominators, grouping required.

SUGGESTED ACTIVITIES

In Spanish-speaking countries the most common way to subtract fractions is to write them horizontally. The method used changes mixed numerals to improper fractions.

PART I

Spanish-Speaking Countries Method

$6\frac{1}{4} - 4\frac{7}{8} =$

$\frac{25}{4} - \frac{39}{8} =$

$\frac{50 - 39}{8} = \frac{11}{8} = 1\frac{3}{8}$

$6 - 3\frac{2}{3} =$

$\frac{18}{3} - \frac{11}{3} =$

$\frac{18 - 11}{3} = \frac{7}{3} = 2\frac{1}{3}$

United States Method

$6\frac{1}{4} = 6\frac{2}{8} = 5\frac{10}{8}$

$-\ 4\frac{7}{8} = 4\frac{7}{8} = 4\frac{7}{8}$

$1\frac{3}{8}$

$6 = 5\frac{3}{3}$

$-\ 3\frac{2}{3} = 3\frac{2}{3}$

$2\frac{1}{3}$

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PART I (continued) 4-K3-5

Spanish-Speaking Countries Method	United States Method
$\frac{3}{4} - \frac{2}{5} =$	$\frac{3}{4} = \frac{15}{20}$
$\frac{15 - 8}{20} = \frac{7}{20}$	$-\ \frac{2}{5} = \frac{8}{20}$
	$\frac{7}{20}$
$\frac{3}{4} - \frac{3}{10} =$	$\frac{3}{4} = \frac{15}{20}$
$\frac{15 - 6}{20} = \frac{9}{20}$	$-\ \frac{3}{10} = \frac{6}{20}$
	$\frac{9}{20}$

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PART II

4-K3-5

Resuelve estos problemas. Convierte los números mixtos a **fracciones impropias.**

1) $7\frac{1}{4} - 2\frac{9}{12} =$

2) $30\frac{1}{4} - 24\frac{7}{6} =$

Resuelve estos problemas restando los números enteros de los números enteros, y las fracciones de las fracciones.

3) $5\frac{2}{3} - 2\frac{1}{4} =$

4) $24\frac{2}{3} - 16\frac{2}{5} =$

Resuelve estos problemas cambiando el entero a número racional y el número mixto a fracción impropia. Encuentra el mínimo común denominador.

5) $5 - 3\frac{1}{6} =$

6) $7 - 2\frac{2}{4} =$

Resta.

7) $1\frac{2}{3} - \frac{4}{8} =$

9) $6 - 1\frac{3}{5} =$

9) $2\frac{6}{7} - 3\frac{1}{2} =$

10) $7\frac{3}{4} - 6 =$

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PART III **4-K3-5**

Permit the students to learn their own method correctly. Make comparisons between both methods. Identify the minuend and the subtrahend in each problem.

Discuss the functions of each part of a problem. Focus students' attention on the final answer.

Perform subtraction operations. Use both methods.

Spanish-Speaking Countries Method

1) $3\frac{1}{8} - 2\frac{1}{4} =$

Este es el minuendo.

Este es el sustraendo.

United States Method

$3\frac{1}{8}$ ← Minuend

$-2\frac{1}{4}$ ← Subtrahend

---

2) $7 - 3\frac{2}{5} =$

$\frac{7}{1} - \frac{17}{5} =$

El minuendo está indicado como fracción impropia.

El sustraendo está indicado como fracción impropia.

$7 = 6\frac{5}{5}$ ← This is the minuend after regrouping.

$-3\frac{2}{5} = 3\frac{2}{5}$

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PART IV

4-K3-5

Solve these problems by using the horizontal method. Convert each mixed numeral to an improper fraction.

Resuelve estos problemas usando el método horizontal en español. Convierte a fracción impropia.

1) $4\frac{3}{5} - 2\frac{3}{4} =$

2) $17\frac{1}{3} - 8\frac{4}{5} =$

Subtract whole numbers from whole numbers and fractions from fractions. Rename the minuend.

Resta separadamente las partes enteras y las fracciones. Modifica el minuendo.

3) $12\frac{1}{3} - 4\frac{5}{12} =$

4) $11\frac{2}{3} - 6\frac{3}{4} =$

Solve these problems by using either method.

5) $6\frac{1}{3} =$

$- 2\frac{5}{6} =$

6) $8\frac{3}{4} - 6\frac{4}{5} =$

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STRAND RATIONAL NUMBERS OBJECTIVE CODE 4-K3-6

OBJECTIVE Read and write a three-place decimal.

SUGGESTED ACTIVITIES

In Spanish-speaking countries the students must recall decimal orders. The tenths are called primer orden; the hundredths, segundo orden; the thousandths, tercer orden; and the ten-thousandths, cuarto orden.

PART I

Spanish-Speaking Countries Method		United States Method	
When the decimal point is written in the Spanish-speaking countries, it is not necessary to read it. The whole unit is read first, and then the decimal. If the decimal point is read, however, it is read as con (with).		In English the whole number is read first; then the word and is said to indicate the decimal point; and finally the number and the name of the place with the last significant digit are given.	
1st order decimal:			
1.1	It is read: un entero, un decimo; un entero con un decimo.	1.1	It is read: one and one tenth.
2nd order decimal:			
1.01 1,01	It is read: un entero, un centésimo; un entero con un centésimo.	1,01	It is read: one and one hundredth.
3rd order decimal:			
1.001 1,001	It is read: un entero, un milésimo; un entero con un milésimo.	1.001	It is read: one and one thousandth.

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4-K3-6

PART II

Lee los siguientes números:

1) 25.102
veinticinco enteros y ciento dos milésimos

2) 18.02
dieciocho enteros con dos centésimos

3) 40.001
cuarenta enteros y un milésimo

4) 1,45
un entero con cuarenta y cinco centésimos

5) 1,060
un entero con sesenta milésimos

6) 5,401
cinco enteros y cuatrocientos un milésimo

Escribe los siguientes números:

1) trescientos treinta milésimos _____
2) quinientos cuatro milésimos _____
3) cuarenta y cinco milésimos _____
4) un entero, cuarenta y cuatro centésimos _____
5) cuarenta enteros con cinco milésimos _____

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PART III

4-K3-6

Write several three-place decimal numbers in the appropriate columns of a table displayed on the chalkboard or a chart. Have the students write and read the decimal numbers using and to indicate the decimal point. Compare the English form with the Spanish form.

Whole Unit Order

6th	5th	4th	3rd	2nd	1st
100,000	10,000	1,000	100	10	1

Decimal Order

Decimal Point	1st	2nd	3rd	4th	5th	6th
.	.1	.01	.001	.0001	.00001	.000001

1 . 7 0 9

Example:

1.709 — un entero con setecientos nueve milésimos
one and seven hundred nine thousandths

1) 7.04 _____

_____

2) 132.747 _____

_____

3) 326.085 _____

_____

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PART IV

4-K3-6

Write the following numbers:

Escribe los números siguientes:

1) five and five thousandths
cinco enteros y cinco milésimos _____

2) forty and seven thousandths
cuarenta enteros y siete milésimos _____

3) one hundred ten and twelve thousandths
ciento diez enteros y doce milésimos _____

4) seven hundred thousandths
setecientos milésimos _____

5) one hundred five and one thousandth
ciento cinco enteros y un milésimo _____

6) one hundred fifty thousandths
ciento cincuenta milésimos _____

7) eighty-one hundredths
ochenta y un centésimos _____

8) four hundred and ten thousandths
cuatrocientos enteros con diez milésimos _____

9) fifty and thirteen hundredths
cincuenta enteros y trece centésimos _____

10) one hundred five thousandths
ciento cinco milésimos _____

Note: If help is needed in reading Spanish, ask the teacher to allow one of the fluent Spanish-speaking students to read the numbers.

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GRADE 6

Place Value

2-L1-1 Write whole numbers, including seven-place, in expanded form using exponents.

Operations with Whole Numbers

3-L1-6 Divide a three- or four-digit dividend by a three-digit divisor. (Estimate the partial quotient by rounding to the nearest hundred.)

Rational Numbers

4-L1-13 Divide fractions.

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STRAND PLACE VALUE OBJECTIVE CODE 2-L1-1

OBJECTIVE Write whole numbers, including seven-place, in expanded form using exponents.

SUGGESTED ACTIVITIES

The translation of terms for place values is necessary for some Spanish-speaking students. The students from some Spanish-speaking countries, such as Spain, use a point rather than a comma to separate each period of a number.

PART I

Spanish-Speaking Countries Method	United States Method
$3.692 = (3\times10^3) + (6\times10^2) + (9\times10^1) + (2\times10^0)$	$3,692 = (3\times10^3) + (6\times10^2) + (9\times10^1) + (2\times10^0)$

8,495,526

8.495.526

$(8\times10^6) + (4\times10^5) + (9\times10^4) +$
$(5\times10^3) + (5\times10^2) + (2\times10^1) + (6\times10^0)$

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PART II 2-L1-1

Marca correctamente los períodos de los números. Luego escríbelos en notación desarrollada.

1) 6 125 426 =

2) 3 969 =

3) 7 941 643 =

4) 123 456 =

5) 841 907 =

6) 6 413 216 =

7) 308 341 =

8) 4 491 613 =

9) 82 624 =

10) 213 001 =

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PART III

2-L1-1

Review place values in the Spanish-speaking system and then teach the English terms. If the students use points in place of commas to separate digits for place value divisions, teach the use of commas. Use the exponential forms to help show the similarities of the two systems.

Review--			Then teach--
Place			
Unidades	1×10^0	=	Units
Decenas	1×10^1	=	Tens
Centenas	1×10^2	=	Hundreds
Unidades de Millar	1×10^3	=	Thousands
Decenas de Millar	1×10^4	=	Ten Thousands
Centenas de Millar	1×10^5	=	Hundred Thousands
Unidades de Millón	1×10^6	=	Millions

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PART IV

2-L1-1

Write numbers by using both systems of period division. Expand the numbers and use the correct exponent.

Escribe los números siguientes, usando ambos sistemas de separación de los períodos. Escríbelos en notación desarrollada usando el exponente correcto.

Número Number	Spanish-Speaking Countries Methods	United States Method	Expansion with Exponents
1) 648 912	648,912 648.912	648,912	$(6X10^5) + (4X10^4) + (8X10^3) + (9X10^2) + (1X10^1) + (2X10^0)$
2) 2 462 110			
3) 72 812			
4) 3 651 000			
5) 79 864			
6) 9 016 242			
7) 1 214			

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STRAND OPERATIONS WITH WHOLE NUMBERS OBJECTIVE CODE 3-L1-6

OBJECTIVE Divide a three or four-digit dividend by a three-digit divisor. (Estimate the partial quotient by rounding to the nearest hundred.)

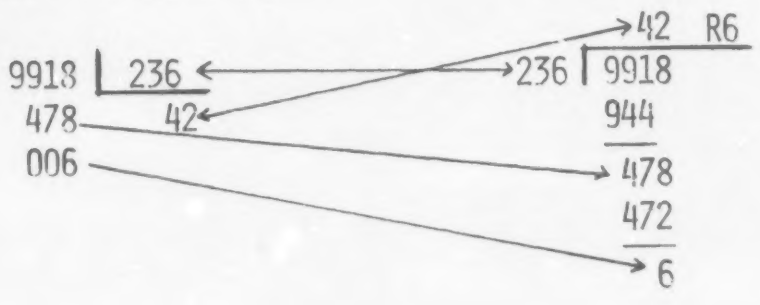
SUGGESTED ACTIVITIES

The division algorithm in the Spanish-speaking countries follows a process different from the one used in the United States. (See Objective 3-K1-6 for the division algorithm process.)

PART I

Spanish-Speaking Countries Method

United States Method



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PART II 3-L1-6

Indica el número de cifras de cada uno de los cocientes que se te piden. Luego divide para encontrar el cociente exacto.

Ejemplo:

4 9 3 0 | 1 2 0 — El cociente tiene 2 cifras.

4 9 3 0 | 1 2 0
0 1 3 — 4 — El cociente es mayor que 40 .

4 9 3 0 | 1 2 0
0 1 3 0 — 4 1
1 0 — El cociente es 41 .

1) 3 9,4 7 3 | 2 0 8 — El cociente tiene _____ cifras.
El cociente es mayor que _____.
El cociente es _____.

2) 9 3,0 0 8 | 5 1 6 — El cociente tiene _____ cifras.
El cociente es mayor que _____.
El cociente es _____.

3) 1 0,8 4 3 | 7 4 1 — El cociente tiene _____ cifras.
El cociente es mayor que _____.
El cociente es _____.

4) 9,5 4 0 | 4 2 5 — El cociente tiene _____ cifras.
El cociente es mayor que _____.
El cociente es _____.

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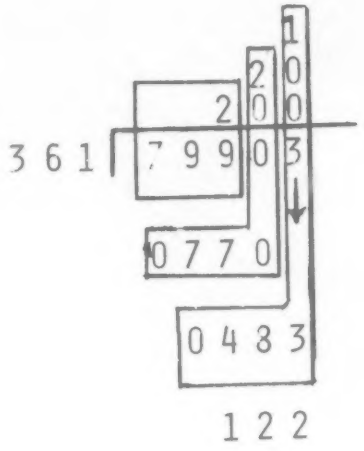
PART III

3-L1-6

Help the Spanish-speaking students to make the transition from their own form of division to the form used in the United States. Follow this procedure:

Ask the students to write the symbol with angle opening down. (⌐‾‾‾). Place the divisor at the left-hand side of the dividend. Select the first division step that uses the same number of digits in the dividend that are in the divisor.

799 will be the first group of digits to be divided. The first three digits will give the first digit on the quotient line.



Each digit after this step will give a digit on the quotient line.

Divide the first group of digits. Fill the second and third places with zeros.

Bring the next digit down to make the second division step. Divide a second time.

Write this quotient above the zero in the tens place of the first quotient. Write a zero in the ones place.

Bring the next digit down to make the third division step. Divide for the third time. Place this digit above the ones place in the other quotients.

The quotient is the sum of the numbers on the quotient line.

```
          1
        2 0
      2 0 0
   ┌─────────
361 | 7 9 9 0 3
    - 7 2 2 0 0
    ---------
      0 7 7 0 3
    -   7 2 2 0
    -----------
        0 4 8 3
    -     3 6 1
    -------------
          1 2 2
```

```
  2 0 0
    2 0
+     1
-------
  2 2 1
```

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PART IV

3-L1-6

Assist the students to make the transition from one algorithm form to the other by giving them individual help.

Divide los siguientes números usando las dos formas; primero calcula cuantos lugares (cifras) tendrá el cociente.

1) 69,545 | 225

2) 98,761 | 506

3) 9,779 | 512

4) 10,911 | 801

5) 98,007 | 111

6) 19,681 | 820

7) 716,909 | 716

8) 65,832 | 410

9) 10,780 | 324

10) 66, 887 | 999

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STRAND RATIONAL NUMBERS OBJECTIVE CODE 4-L1-13

OBJECTIVE Divide fractions.

SUGGESTED ACTIVITIES

Division of fractions is performed in various ways in Spanish-speaking countries but the crisscross method is used most frequently. This method is used after mixed numerals have been converted to improper fractions. Some teachers advise the students to reduce the fractions to lowest terms before dividing.

In Spanish-speaking countries the division symbols (: and ÷) are used.

PART I

Spanish-Speaking Countries Method

Crisscross Method with Common Fractions

The numerator of the first fraction is multiplied by the denominator of the second fraction to form the numerator of the quotient.

$$\frac{2}{3} : \frac{4}{6} = \frac{12}{\quad}$$

The denominator of the first fraction is multiplied by the numerator of the second fraction to form the denominator of the quotient.

$$\frac{2}{3} : \frac{4}{6} = \frac{\quad}{12}$$

The quotient is reduced to the lowest terms.

$$\frac{2}{3} : \frac{4}{6} = \frac{12}{12} = \frac{1}{1} = 1$$

United States Method

$$\frac{2}{3} \div \frac{4}{6} =$$

Divisor is inverted.

$$\frac{2}{3} \times \frac{6}{4} =$$

Fractions are reduced to lowest terms.

$$\frac{\cancel{2}^{1}}{\cancel{3}_{1}} \times \frac{\cancel{6}^{2}}{\cancel{4}_{2}} =$$

Numerators and denominators are multiplied.

$$\frac{1 \times 2}{1 \times 2} = \frac{2}{2} = 1$$

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PART I (continued) 4-L1-13

Spanish-Speaking
Countries Method

Crisscross Method
with Mixed Numerals

Mixed numerals are converted to improper fractions and then reduced to lowest terms, when possible. Then the crisscross operation is performed.

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PART II

4-L1-13

Resuelve los siguientes ejercicios de dividir:

1) $3\frac{8}{9} : \frac{4}{5} =$

2) $\frac{2}{3} : \frac{2}{3} =$

3) $13\frac{4}{6} : 2\frac{7}{8} =$

4) $4\frac{6}{13} : \frac{2}{4} =$

5) $6\frac{5}{8} : 1\frac{6}{7} =$

6) $1\frac{8}{9} : \frac{13}{14} =$

7) $5\frac{5}{9} : \frac{2}{3} =$

8) $6\frac{8}{9} : \frac{4}{6} =$

9) $4\frac{5}{6} : \frac{5}{8} =$

10) $2\frac{8}{11} : \frac{5}{9} =$

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PART III

A-L1-13

Explain that the division process is usually performed in the United States by using the reciprocal of the divisor and in Spanish-speaking countries by multiplying the numerator and denominator in a crisscross pattern or by using the reciprocal method.

Spanish-Speaking Countries Method	United States Method

Note: Division symbols are : and ÷

1) $\frac{2}{3} \times \frac{4}{3} \rightarrow \frac{6}{12} = \frac{1}{2}$

$\frac{2}{3} \div \frac{4}{3} = \frac{2}{3} \times \frac{3}{4}$

$= \frac{\overset{1}{\cancel{2}} \times \overset{1}{\cancel{3}}}{\underset{1}{\cancel{3}} \times \underset{2}{\cancel{4}}} = \frac{1 \times 1}{1 \times 2} = \frac{1}{2}$

2) $4\frac{2}{3} \div 1\frac{2}{5} =$

$\frac{14}{3} \div \frac{7}{5} =$

$\frac{14}{3} \times \frac{5}{7} =$

$\frac{\overset{2}{\cancel{14}}}{3} \times \frac{5}{\underset{1}{\cancel{7}}} = \frac{10}{3}$

$\frac{10}{3} = 3\frac{1}{3}$

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PART III (continued) 4-L1-13

Spanish-Speaking Countries Method

3) $\frac{2}{3} \div \frac{4}{3} =$

$$\frac{\cancel{2}^{1}}{\cancel{3}_{1}} \times \frac{\cancel{3}^{1}}{\cancel{4}_{2}} = \frac{1}{2}$$

or

$$\frac{2 \times 3}{3 \times 4} = \frac{\cancel{6}^{1}}{\cancel{12}_{2}} = \frac{1}{2}$$

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PART IV

4-L1-13

Solve the following problems:

Resuelve los siguientes problemas:

1) $1\frac{1}{3} \div \frac{5}{6} =$

2) $4\frac{8}{9} \div 1\frac{5}{7} =$

3) $5\frac{4}{8} \div \frac{6}{4} =$

4) $5\frac{8}{10} \div 1\frac{10}{11} =$

5) $6\frac{11}{12} \div 2\frac{3}{4} =$

6) $18\frac{2}{9} \div \frac{4}{6} =$

7) $6\frac{3}{4} \div 1\frac{2}{3} =$

8) $9\frac{3}{6} \div 3\frac{7}{8} =$

9) $14\frac{1}{4} \div 6\frac{2}{3} =$

10) $16\frac{2}{7} \div 6\frac{4}{10} =$

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ENGLISH/SPANISH VOCABULARY

The equivalent or most nearly accurate equivalent Spanish terms have been listed for the English terms used in the mathematical context.

English	Spanish
addend	sumando
adjacent	adyacente
associative property	propiedad asociativa
average	promedio
block, cube	cubo, hexaedro
border	orilla, borde, margen
boundary	límite, linde, lindero
braces; brackets	llaves
cardinality of a set	cardinalidad del conjunto
carry	llevar
Cartesian product	productos cartesianos
cent, penny	centavo, céntimo, centésimo
chalk	gis, tiza
chord	cuerda
classify	clasifica(r)
clock face	carátula
clock hands	manecillas
commutative property	propiedad comutativa
compound interest	interest compuesto
corner, vertex	vértice
cuisenaire rods	palillos de colores usados para contar o medir
black	negro (7 cm)
blue	azúl (9 cm)
brown	café (8 cm)
dark green	verde obscuro (6 cm)
green	verde claro (3 cm)
orange	naranja, anaranjado (10 cm)
purple	morado (4 cm)
red	rojo (2 cm)
white	blanco (1 cm)
yellow	amarillo (5 cm)
dates	datos, fechas
decimal fraction	número decimal
digit	cifra, dígito
distributive property	propiedad distributiva
dozen	docena
East, Orient	este, oriente
edge	arista
eight, eighth	ocho, octavo
encircle	encerrar en un círculo
end points	puntos extremos en toda línea

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English	Spanish
equal; same	igual; lo mismo, el mismo
equidistant	igual distancia
even number	número par
expanded notation	notación desarrollada
exponent	exponente
finite set	conjunto finito
first	primero, primera
five, fifth	cinco; quinto, quinta
five hundred	quinientos
foot, feet	pie, pies
four, fourth	cuatro; cuarto, cuarta, cuadrante
fraction	fracción, fraccionado, quebrado
geoboard	tablero geométrico
graph	graficar, gráfica
greater than, more than	mayor que, más que
greatest common divisor (GCD)	máximo común divisor (MCD)
greatest common factor (GCF)	máximo común divisor (MCD)
half; halves	medio, mitad; medios, mitades
height	altura, alto
hundred; hundredth	cien, ciento; centésimo
hundreds place	centenas
inch	pulgada
income tax	impuesto sobre el sueldo
installment buying	compras a plazos
integers	números enteros
investments	inversiones
large, larger, largest	largo, más largo, el más largo
least common multiple (LCM)	mínimo común múltiplo (MCM)
left-hand side	a la izquierda
length	longitud
less than	menor que, menos que
light, lighter, lightest	liviano, más liviano, el más liviano
manipulate	manipular
manipulative materials	objetos manuales usados en el salón de clase
mass, weight	masa, peso
match	emparejar
maze	laberinto
measure	medir, medida
measurement	medida
mixed numerals	fracción mixta
Monday	lunes
multiplication facts	tablas de multiplicar

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English	Spanish
narrow	angosto
nine, ninth	nueve, noveno
October 12, 1981, 10/12/1981	12 de octubre de 1981, 12/10/1981
odd number	número non, impar
one; ones place	uno, una; unidades
one hundredth	un centésimo
one tenth	un décimo
one thousandth	un milésimo
ordered pairs	números ordenados (1, 4)
ordinal numbers	números ordinales
outcome	resultado
pair	par, emparejar, formar pares
percent, percentage	porciento, porcentaje
pint (nonexistent in Spanish)	equivale a dos tazas
place value	valor relativo de los números
plane	plano
power of a number	potencia de un número
protractor	transportador
quart	un cuarto de galón
quarter	un cuarto de dólar, cuarto, cuadrante
quarterly	trimestralmente
rate pair (nonexistent in Spanish)	razón de dos números
regrouping	reagrupar
remainder	residuo
rename	convertir números de un valor a otro (ej: unidades a decenos o centenos o viceversa)
right-hand side	a la derecha
right triangle	triángulo rectángulo
round off	redondear
same	el mismo, lo mismo
sandpaper	papel de lija
Saturday	sábado
scale	escala, balanza, romana, báscula
score	puntuación
second	segundo (orden)
sequence	orden, secuencia
sets	conjunto
seven, seventh	siete, séptimo
short, shorter, shortest	corto, más corto, el más corto

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English	Spanish
six, sixth	seis, sexto
space regions, solid	cuerpo geométrico
spring scale	balanza de resorte
square	cuadrado
square number	el producto de dos factores iguales, el cuadrado de un número
square root	raíz cuadrada
straight	derecho
straightedge	escuadra
straight line	línea recta
stylus	punta metálica del compás
subset	subconjunto
subtrahend	substraendo, sustraendo
subtraction	resta, substracción, sustracción
Sunday	domingo
tactual	táctil (tocando con las manos)
tag board	boletín, tablero de etiquetas
take away	restar, quitar, sacar
tenness (base ten)	base diez
ten thousands place	decenas de millar
ten thousandth	diez milésimo
ten thousandths place	décimo de millar
third, one-third	tercero, un tercio
thirty-nine	treinta y nueve
Thursday	jueves
thousand, thousandth	mil, milésimo
thousands place	unidades de millar
Tuesday	martes
twenty-five	veinticinco
unit whole	entero, unidad
yard	yarda
Wednesday	miércoles
weigh	pesar
weight(s)	peso, pesa(s)
west	poniente, occidente
width	ancho
zero	cero (0)

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SUPPLEMENT FOR CURRICULUM GUIDE FOR MATHEMATICS:
SPANISH-SPEAKING STUDENTS
TEACHER EVALUATION FORM

Use this form to evaluate the supplement. Put a number from 1 to 4 in each box according to the scale below:

1 poor 2 fair 3 good 4 excellent

Return the completed form to the Bureau of Mathematics, Room 838, Department of Curriculum, Mail Run #84.

School _____ District ____ Date _____ Teacher _____

Objective	Part of Lesson	Evaluation					
		Significance of	Differentiation	Adequacy of Presentation	Usefulness of Materials	Adequacy of Format	Comments
2-J1-2	I						
	II						
	III						
	IV						
2-J1-3	I						
	II						
	III						
	IV						
3-J1-16	I						
	II						
	III						
	IV						
3-J1-17	I						
	II						
	III						
	IV						
3-J1-19	I						
	II						
	III						
	IV						
5-J1-3	I						
	II						
	III						
	IV						
2-K1-1	I						
	II						
	III						
	IV						
2-K1-3	I						
	II						
	III						
	IV						
3-K1-2	I						
	II						
	III						
	IV						

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Objective	Part of Lesson	Evaluation					
		Significance of	Differentiation	Adequacy of Presentation	Usefulness of Materials	Adequacy of Format	Comments
3-K1-6	I						
	II						
	III						
	IV						
3-K1-7	I						
	II						
	III						
	IV						
4-K1-7	I						
	II						
	III						
	IV						
4-K2-3	I						
	II						
	III						
	IV						
4-K2-5	I						
	II						
	III						
	IV						
4-K3-5	I						
	II						
	III						
	IV						
4-K3-6	I						
	II						
	III						
	IV						
2-L1-1	I						
	II						
	III						
	IV						
3-L1-6	I						
	II						
	III						
	IV						
4-L1-13	I						
	II						
	III						
	IV						
	I						
	II						
	III						
	IV						
	I						
	II						
	III						
	IV						

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